Electro Hypersensitivity

Talking to Your Doctor

In addition to numerous other health problems, electromagnetic pollution has been associated with an increase in the number of individuals suffering from a condition known as electrohypersensitivity (EHS). EHS is defined by the World Health Organization as: "…a phenomenon where individuals experience adverse health effects while in the vicinity of devices emanating electric, magnetic, or electromagnetic fields."

In Sweden, it is classified as a disability and health care facilities with low levels of exposure to electromagnetic fields and radiofrequency radiation are available. The Canadian Human Rights Commission report also acknowledges environmental sensitivity attributed to electromagnetic exposure. (28) Researchers estimate that approximately 3% of the population has severe symptoms of EHS, and another 35% of the population has moderate symptoms such as an impaired immune system and chronic illness (Havas, 2007).

Because EHS is an **environmental sensitivity**, avoidance of triggers is essential in preventing symptoms and regaining good health. Like other environmental sensitivities, EHS presents with a variety of symptoms and it is common to have overlapping conditions. For instance, Multiple Chemical Sensitivity and Fibromyalgia, among other illnesses, are common in people with EHS and severity of symptoms in people with M.S., Diabetes, and other illnesses have been shown to be exacerbated with exposure to electromagnetic fields (EMF) and abated with mitigation of the EMF source(s).

SYMPTOMS OF ELECTRO HYPERSENSITIVITY

The biological effects from exposure to EMF/EMR include both adverse health effects and loss of homeostasis and well-being. Symptoms vary from patient to patient depending on their physical biology and exposure intensity and duration. Symptoms quickly improve when away from EMF/EMR sources, particularly when the patient moves away from computers, fluorescent lighting, transformers, wireless antenna, cell and cordless phones, appliances and out of proximity to cell phone towers, electrical substations and power lines. All these are potential sources of higher than normal EMF/EMR exposure. Symptoms recur on returning to the irradiated environment. Over time, sensitivity is increased to smaller and smaller EMF/EMR exposures. (Sage, 2001)

SYMPTOMS OF ELECTRO HYPERSENSITIVITY					
Neurological		**Cardiac**	**Respiratory**	**Dermatological**	**Ophthalmologic**
headaches	depression	palpitations	sinusitis	skin rash	deteriorating vision
difficulty concentrating	anxiety	pain or pressure in the chest	asthma	facial flushing	pain or burning in the eyes
muscle and joint pain	confusion and spatial disorientation	low or high blood pressure	bronchitis	itching	pressure in/behind the eyes
memory loss	fatigue	shortness of breath	pneumonia	burning	floaters
dizziness	weakness	arrhythmias			cataracts
nausea	tremors	slow or fast heart rate		swelling of face and neck	
irritability	muscle spasms				
numbness	leg/foot pain				
tingling	"Flu-like" symptoms				
hyperactivity	fever				
altered reflexes	insomnia				
OTHER					
digestive problems	abdominal pain	testicular/ovarian pain/swelling	enlarged thyroid	great thirst	dehydration
nosebleeds	internal bleeding	hair loss	pain in the teeth	deteriorating fillings	Light sensitivity
swollen lymph nodes	loss of appetite	hypoxia	allergies	frequent urination and incontinence	night sweats
immune abnormalities	redistribution of metals within the body	ringing in the ears (tinnitus or similar chronic ear-noise)	impaired sense of smell	altered sugar metabolism	dryness of lips, tongue, mouth, eyes
Severe reactions can include seizures, paralysis, psychosis, and stroke					

BIOLOGICAL EFFECTS OF EMF/EMR EXPOSURE

(Excerpted from: Do You Have Microwave Sickness? Paul Doyon)

Exposure to EMF/EMR:

Induces Oxidative Damage leading to depletion of the body's natural store of antioxidants like Super Oxide Dimutase (SOD), Catalase, Glutathione, CoQ10, and Melatonin. When the body becomes depleted in antioxidants, premature aging, increased infections, and sticky blood are just a few of the consequences. With a depressed level of antioxidants in the blood, for example, high-density lipoproteins (HDL) or the good cholesterol will bind with free radicals (oxidants) turning the good cholesterol into bad cholesterol or low-density lipoproteins (LDL).

Affects an abnormal influx of calcium into cells. When there is an abnormal influx of calcium into mast cells, for example, they produce histamine. This is just one of the ways in which microwave exposure has been known to trigger or aggravate allergic reactions.

Induces mitochondria dysfunction. The mitochondria are the powerhouse of the cell. Dysfunctional mitochondria will interfere with the cells' ability to produce energy and can be linked to fatigue and possibly even obesity.

Depolarizes the body's red blood cells, causing them to clump together. When this happens, the amount of oxygen getting to the brain cells and the cells of the body's other organs is diminished substantially leading to hypoxia. This can cause symptoms similar to altitude sickness: nausea, dizziness, inability to concentrate, and so on.

Induces a decrease in the numbers of Natural Killer (NK) cells. This leads to the body's weakened ability to recover from viral and other types of infections. Therefore, people exposed to microwave radiation would take longer than normal to recover from your day-to-day infections.

Long-term microwave radiation has been shown to **change a particular form of white blood cell (lymphocyte) ratio** - known as the T-helper/T-suppressor (T4/T8) cell ratio - from normal to abnormal. Abnormalities in this T-lymphocyte ratio have been shown to lead to an increased susceptibility to viral, fungal, and bacterial infections. Symptoms include sore throats, low-grade fevers, weakness, persistent fatigue, and swollen lymph glands.

Increases viruses, bacteria, mold, parasites, and yeast in the blood of the human host.

Induces what is known as "subliminal" stress causing the adrenal glands to excrete an abnormally greater amount of cortisol and adrenaline. Excretion of adrenaline, for one, can lead to irritability and a feeling of hyperactivity - the latter now very common in children with ADHD. In a continuous state this will eventually lead to adrenal exhaustion. Excessive cortisol has been linked to obesity.

Causes a decrease of 5-HT in the blood. 5-HT is a precursor to the production of the brain hormone serotonin. Low levels of serotonin have been linked to anxiety and depression. An increase in anxiety and depression can in turn be linked to an increase in the number of suicides.

Induces a decrease in levels of the brain hormone norepinephrine. This hormone is essential for control of the autonomic nervous system, and lack of it can lead to autonomic nervous system disorders. For example, if the autonomic nervous system is not working properly, the body will have trouble regulating its temperature - i.e. cooling itself when it is warm and heating itself when it is cold. An abnormal decrease in norepinephrine levels has also been connected to short-term memory disturbances and depression.

Alters production of melatonin. This brain hormone and antioxidant is necessary for proper sleep. 42 million (approximately one in five) Americans now take sleep medication for insomnia while others often experience sleep disturbances due to exposure to electromagnetic radiation (EMR). A drop in melatonin levels has also been connected with increases in breast cancer.

Reduces the levels of the brain hormone, dopamine. A drop in dopamine levels have been linked with depression.

Affects an abnormal drop in the levels of the neurotransmitter acetylcholine. A drop in the levels of this neurotransmitter has been linked to a number of neurological and neuromuscular disorders - including Alzheimer's disease.

Induces restlessness and hence may very well also be responsible for a syndrome called **restless leg syndrome** (RLS).

Alters regional cerebral blood flow. In conditions like autism and chronic fatigue syndrome (CFS) it has been shown via SPECT

The **Canadian Human Rights Commission** approved a Policy on Environmental Sensitivities on June 15th 2007. EHS is included in this report and is recognized as a disability.
http://www.chrc-ccdp.ca/legislation_policies/policy_environ_politique-en.asp

Diagnostic Criteria

Diagnostic criteria are such that independent physicians would come to the same conclusion when examining a particular patient. This is important both for treatment purposes and for research.

With regard to multiple chemical sensitivity, thirty-four experienced North American physicians and researchers who had examined patterns of symptoms in thousands of people reached a consensus regarding criteria to establish a diagnosis:

- symptoms are reproducible with repeated exposure;
- the condition is chronic;
- low levels of exposure [lower than previously or commonly tolerated] result in manifestations of the syndrome;
- symptoms improve or resolve when the incitants are removed;
- responses occur to multiple chemically unrelated substances; and
- symptoms involve multiple organ systems.

A systematic literature review confirmed the diagnostic criteria, and suggested that neurological symptoms could be an additional criterion. The consensus diagnostic criteria were also validated, as they identified those most and least likely to be affected among 2,546 patients in Toronto medical practices with high and low prevalence of patients with sensitivities. In the same study, a combination of four neurological symptoms also discerned people most likely affected by multiple chemical sensitivities: having a stronger sense of smell than others; **feeling dull/groggy; feeling "spacey;" plus having difficulty concentrating. A pattern consistent with these diagnostic criteria is also reported for sensitivities to electromagnetic phenomena.**

"Environmental sensitivities" does not describe a single, simple condition with a universal cause. Environmentally sensitive individuals link their symptoms to aspects of their environment such as being in a particular place or being exposed to one or more factors such as chemicals, biological materials or **electromagnetic phenomena**. Table 1 lists some terms that have been used to describe aspects of environmental sensitivities.

Adding to the complexity of the clinical picture are overlapping conditions, also listed in Table 1. Environmental exposures may not contribute to all these conditions in all patients, but one should be alert to the possibility that a range of factors may contribute to an individual's ill health.

Table 1: **Names used for aspects of environmental sensitivities and commonly overlapping conditions**

Aspects of Environmental Sensitivities	Commonly Overlapping Conditions
State of heightened reactivity to the environment	Fibromyalgia
Total allergy syndrome	Myalgic encephalomyelitis (ME) Chronic fatigue syndrome
Toxicant-Induced Loss of Tolerance (TILT)	Post-viral fatigue syndrome
Multiple chemical sensitivity(ies) (MCS)	Post-infectious neuromyasthenia
Multiple chemical hypersensitivity(ies)	Yuppie flu
Chemical intolerance(s)	Chronic pain
Gulf War illness/syndrome	Migraine
Idiopathic environmental intolerance	Arthritis
Environmental illness	Allergies
Chemical injury/allergy	Rhinitis
Toxic injury	Asthma
Tight building syndrome	Food intolerance syndrome
Sick building syndrome	Celiac disease
Twentieth century disease	Irritable bowel syndrome
Chemically induced illness	Major depression
Chemophobia	Anxiety or panic disorder
Electromagnetic (hyper) sensitivities /intolerance	Hypothyroidism
Radiowave sickness	

(http://www.chrc-ccdp.ca/research_program_recherche/esensitivities_hypersensibilitee/page2-en.asp#21)

TREATMENT

(Excerpted from The Medical Perspective on Environmental Sensitivities > Page 6 The Canadian Human Rights Commission Research Project)

Early recognition, avoidance of symptom-triggering agents, environmental control, treatments that may reduce residual toxins and recovery of normal biological processes are key to regaining health for people with sensitivities. Without mitigation of the incitant, people with environmental sensitivities may become severely debilitated.

The most immediate and effective course of action is to avoid all sources of electromagnetic radiation.

Once exposure to incitants is eliminated, helpful interventions include:

- treating gastrointestinal infections which, if untreated, can lead to absorption of internal toxins and large-molecule food antigens, or conversely, may lead to poor absorption of nutrients;
- regimens to enhance detoxification and elimination such as sauna and exercise therapy;
- reduction of heavy metal contamination using oral and intravenous chelation for toxic metals (shown to be safe to treat lead in children; it is currently in clinical trials for children with autism);
- oral and intravenous vitamins;
- securing hormonal homeostasis, given that many of the toxins observed are endocrine disruptors;
- correcting biochemical irregularities;
- psychological, social and spiritual support;
- occupational accommodation.

The Environmental Health Clinic at the The New Women's College Hospital, Toronto, Ontario

http://www.womenscollegehospital.ca/programs/program76.html

All patients with suspected Environmental Sensitivities would benefit greatly from attending this clinic.

The Environmental Health Clinic is a unique multidisciplinary clinic, and the only one of its kind in Ontario. It was established in 1996 by the Ministry of Health and Long Term Care to be a provincial resource in promoting environmental health, and to improve health care for people with environment-linked conditions such as Chronic Fatigue Syndrome, Fibromyalgia and Multiple Chemical Sensitivities.

The Environmental Health Clinic is the clinical part of a joint clinical and research program of Women's College Hospital and the University of Toronto.

The purpose of the Clinic is to:

- Educate our clients, the public and health-care professionals about environmental health issues
- Provide a comprehensive multidisciplinary assessment for clients with Environmental Sensitivities/Intolerances (and related conditions), Chronic Fatigue Syndrome and Fibromyalgia, and to make recommendations to their treating physicians regarding the management of their ongoing health care needs
- Gain a better understanding of the health-care needs of those with Environmental Sensitivities/Intolerances, Chronic Fatigue Syndrome and Fibromyalgia through participation in clinical research a better understanding of the health-care needs of those with Environmental Sensitivities/Intolerances, Chronic Fatigue Syndrome and Fibromyalgia through participation in clinical research

A physician referral is required. To have a referral package mailed to you, call toll free 1-800-417-7092.

THE CONTROVERSY

(Excerpted from the Bioinitiative Report, http://www.bioinitiative.org/report/)

Problems with Existing Public Health Standards (Safety Limits)

Today's public exposure limits for telecommunications are based on the presumption that heating of tissue (for RF) or induced electric currents in the body (for ELF) are the only concerns when living organisms are exposed to RF.

In the past, scientists and engineers developed exposure standards for electromagnetic radiation based on what we now believe are faulty assumptions that the right way to measure how much non-ionizing energy humans can tolerate (how much exposure) without harm is to measure only the heating of tissue (RF) or induced currents in the body (ELF). In the last few decades, it has been established beyond any reasonable doubt that bioeffects and some adverse health effects occur at far lower levels of RF and ELF exposure where no heating (or induced currents) occurs at all; some effects are shown to occur at several hundred thousand times below the existing public safety limits where heating is an impossibility.

Effects occur at non-thermal or low-intensity exposure levels thousands of times below the levels that federal agencies say should keep the public safe. For many new devices operating with wireless technologies, the devices are exempt from any regulatory standards. The existing standards have been proven to be inadequate to control against harm from low-intensity, chronic exposures, based on any reasonable, independent assessment of the scientific literature. The explosion of new sources of RF and ELF has created unprecedented levels of artificial electromagnetic fields that now cover all but remote areas of the habitable space on earth.

Main Reasons for Disagreement Among Experts

1. Scientists and public health policy experts use very different definitions of the standard of evidence used to judge the science, so they come to different conclusions about what to do. Scientists do have a role, but it is not exclusive and other opinions matter.
2. We are all talking about essentially the same scientific studies, but use a different way of measuring when "enough is enough" or "proof exists".
3. Some experts keep saying that all studies have to be consistent (turn out the same way every time) before they are comfortable saying an effect exists.
4. Some experts think that it is enough to look only at short-term, acute effects.
5. Other experts say that it is imperative we have studies over longer time (showing the effects of chronic exposures) since that is what kind of world we live in.
6. Some experts say that everyone, including the very young, the elderly, pregnant women, and people with illnesses have to be considered – others say only the average person (or in the case of RF, a six-foot tall man) matter.
7. There is no unexposed population, making it harder to see increased risk of diseases.
8. The lack of consensus about a single biological mechanism of action.
9. The strength of human epidemiological studies reporting risks from ELF and RF exposures, but animal studies don't show a strong toxic effect.
10. Vested interests have a substantial influence on the health debate.

No one would recommend that drugs used in medical treatments and prevention of disease be randomly given to the public, especially to children. Yet, random and involuntary exposures to EMFs occur all the time in daily life.

Medical conditions are successfully treated using EMFs at levels below current public safety standards, proving another way that the body recognizes and responds to low-intensity EMF signals. Otherwise, these medical treatments could not work. The FDA has approved EMFs medical treatment devices, so is clearly aware of this paradox.

RECOMMENDED READING

Resources are endless on this topic. Here are some links to highly recommended reading materials.

The BioInitiative Report

http://www.bioinitiative.org/report/index.htm

By the BioInitiative Working Group. An international working group of scientists, researchers and public health policy professionals (The BioInitiative Working Group) has released its report on electromagnetic fields (EMF) and health. They document serious scientific concerns about current limits regulating how much EMF is allowable from power lines, cell phones, and many other sources of EMF exposure in daily life.

The Canadian Human Rights Commission Policy on Environmental Sensitivities.

http://www.chrc-ccdp.ca/legislation_policies/policy_environ_politique-en.asp?lang_update=1

Evidence that Electromagnetic Radiation is Genotoxic: The implications for the epidemiology of cancer and cardiac, neurological and reproductive effects

by Dr. Neil Cherry June 2000

http://www.whale.to/b/cherry6.html

WEEP *Canadian Initiative to stop **W**ireless, **E**lectric, and **E**lectromagnetic **P**ollution.*

http://.weepinitiative.org